UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
GAINESVILLE DIVISION

Santana Bryson and Joshua Bryson, as Administrators of the Estate of C.Z.B., and as surviving parents of C.Z.B., a deceased minor,	*	
Plaintiffs,	*	Civil Action File
v.	*	No. 2:22-cv-17-RWS
Rough Country, LLC	*	
Defendant.	*	

PLAINTIFFS' RESPONSE IN OPPOSITION TO DEFENDANT'S *DAUBERT* MOTION TO EXCLUDE G. BRYANT BUCHNER, P.E. AND HIS OPINIONS

I. INTRODUCTION

Mr. Buchner is one of the leading accident reconstruction experts in the country. He is certified in accident reconstruction through the Society of Automotive Engineers and has over 30 years of experience in accident reconstruction.[1] Mr. Buchner has investigated countless accidents all around the country and testified as an expert witness in hundreds of cases. Given his extensive credentials, RC does not *attempt* to challenge his qualifications to testify about accident reconstruction.

[1] *See* Ex. 1, Buchner CV.

Mr. Buchner's conclusion, i.e., that bumper engagement decreases vehicle crush, is not controversial. It is a well-known engineering fact, accepted by the National Highway Traffic Safety Administration, the Insurance Institute for Highway Safety, and all major automakers. It is so well accepted that automakers opted to regulate themselves by creating and abiding by the Enhancing Vehicle-to-Vehicle Crash Compatibility Agreement (EVC).

There are only three ways that engineers in the field of accident reconstruction can determine what a vehicle's crush would be in a hypothetical collision: mathematical hand calculations, computer simulations, or running an accurate[2] crash test. Mr. Buchner used two of those methods to determine whether an unlifted F-250 would have intruded the same amount into the Brysons' vehicle. He used very conservative assumptions when he performed that analysis. And he ultimately chose as his final opinion the estimate of crush that was the least favorable to Plaintiffs in the range of possibilities. The methods he used are the same methods used by others in his field and they have been validated by independent third parties.

The Court should deny RC's motion and allow Mr. Buchner to offer his opinions at trial for two primary reasons:

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[2] Because Exponent's crash test did not employ a proper scientific methodology, Plaintiffs have moved to exclude it. *See* Doc. 115

First, Mr. Buchner's crush calculation analysis is reliable. Mr. Buchner applied a standard, peer-reviewed formula commonly used in accident reconstruction. RC's lawyers advance an argument their own expert disagrees with—both experts in this case agree the crush analysis formula *can* be used to calculate the vehicle deformation in a bumper-to-bumper collision.

Second, Mr. Buchner's computer simulation is also a reliable methodology. Mr. Buchner used the HVE/SIMON/DYMESH program according to its intended purpose—to simulate a collision and calculate the vehicle deformation. Contrary to RC's claims, the computer programs Mr. Buchner used have been validated in peer-reviewed literature. Mr. Buchner's simulation was properly applied using a reliable program that employs data collected by independent third parties.

Mr. Buchner's conclusions are the product of reliable principles and methods in his field. RC's critiques of his methodology are properly reserved for cross-examination, not a reason to exclude his opinions.

II. SUMMARY OF MR. BUCHNER'S OPINIONS

Mr. Buchner performed a comprehensive reconstruction of the collision. He determined the vehicles' speeds, weights, offsets, delta-Vs, G-forces, and occupant position during the crash.[3] He also determined that RC's lift kit raised the F-250's

[3] *See* Ex. 2, Buchner Report, at 10-11.

height by six inches.[4] By analyzing the vehicle scan data and physical damage, he determined the F-250 intruded *4.36 feet* into the Bryson family's Ford Escape, and shoved C.Z.B.'s second-row seat over 2 feet during the crash.[5] RC does not challenge *any* of Mr. Buchner's conclusions about the subject collision.

Mr. Buchner also studied the effect of RC's lift kit on the amount of intrusion in the crash by analyzing how much crush would have resulted had the F250 been in a stock, unlifted condition.

First, Mr. Buchner performed a mathematical crush calculation. Mr. Buchner used an industry-standard crush analysis formula for his calculation. That formula has been peer-reviewed, validated, and relied upon in accident reconstruction.[6] The crush analysis formula applies Newton's law to calculate the mathematical relationship between vehicles' closing speeds, crush energy, geometry, and stiffness coefficients.[7] Mr. Buchner knew the closing speeds for both vehicles in the collision.[8] Mr. Buchner relied on comprehensive vehicle data

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[4] *Id.* at 10.
[5] *Id.*
[6] *See* Ex. 3, SAE 2000-01-1318, Derivation of Closing Speed as a Function of Dissipated Energy, Traffic Crash Reconstruction, Northwestern University Center for Public Safety.
[7] *See* Ex. 2, Buchner Report, at 1359.
[8] The Bryson family's Ford Escape was stopped. Mr. Buchner inputted the F-250's closing speed based on black box data. *See* Ex. 4, Ford F-250 ACM Download.

for the F-250 and Ford Escape, including stiffness coefficient data.[9] He then applied the mathematical calculation to solve for the only remaining variable—the amount of deformation (or "crush depth") from the collision.[10] Mr. Buchner's result showed the unlifted Ford F-250 would have intruded approximately 2.3 fewer feet into the Ford Escape:

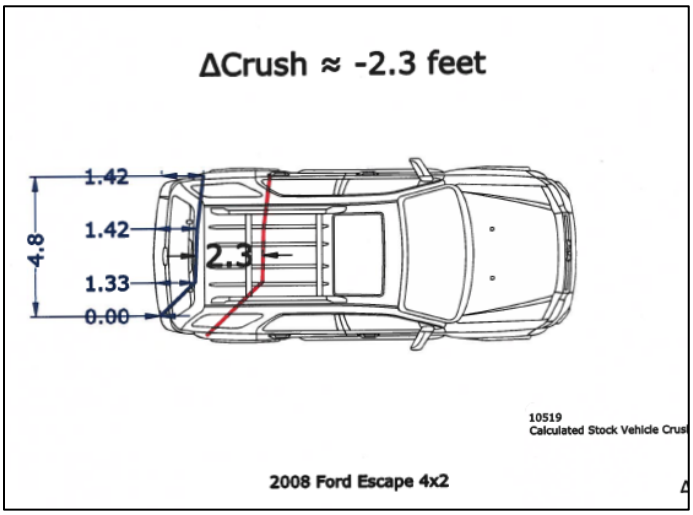

Fig 1, a visual reprsentation of Mr. Buchner's crush calculation result

RC's claim that Mr. Buchner's comparison of the accident crush and calculated crush "does not add up" is based on RC's misunderstanding of his diagrams.[11] In the subject collision, the F-250 impacted the Escape's *hatch* above the bumper, so that diagram shows that the F-250 intruded 3.35 feet from the hatch.[12] In the crush calculation, the unlifted "stock" F-250 would have impacted

[9] *See* Ex. 5, Stiffness Coefficients, at BRYSON 3997-3998.
[10] *See* Ex. 2, Buchner Report, at 1359; Ex. 6, Crush Calculation.
[11] *See* Doc. 137, Def's Br., at 4.
[12] *See* Ex. 7, Buchner Diagram: "2008 Ford Escape: Accident Crush."

the Escape's *bumper*, so Mr. Buchner's diagram shows the F-250 would have intruded 1.42 feet from the Escape's bumper.[13] Because the Ford Escape's bumper is 5 inches behind the hatch, the difference between the *total* amount of intrusion into the Escape must account for those 5 inches.[14] Therefore, Mr. Buchner calculated that the difference in *total* crush, as measured from the bumper of both vehicles, between the subject collision (lifted F-250) and crush calculation (unlifted F-250) is 2.3 feet.[15]

Importantly, Mr. Grimes fundamentally ***agrees*** with Mr. Buchner's use of the crush analysis formula to calculate the Escape's crush depth.[16] Mr. Grimes testified Mr. Buchner's crush analysis technique is appropriate as long as he used appropriate vehicle stiffness coefficients.[17] Mr. Grimes' sole reservation was that the calculation would need adjustment in override collisions like the *subject* crash—he had no basis for referring to Mr. Buchner's calculation of a ***stock*** F-250 colliding with a Ford Escape as an override.[18] Both Mr. Buchner and Mr. Roche

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[13] *See* Ex. 8, Buchner Diagram: "Calculated Stock Vehicle Crush."
[14] Mr. Buchner's crush calculation shows where he added the 5 inches to account for the distance between the bumper and the hatch. *See* Ex. 6, Crush Calculation, at 3992 ("M Bumper" variable).
[15] *Id.*; *see also* Ex. 8, Buchner Diagram: "Calculated Stock Vehicle Crush."
[16] *See* Doc. 102-3, Grimes Dep., at 156:6-18.
[17] *Id.*
[18] *Id.* at 157:5-158:5.

(the only structural engineer in the case) confirmed that a collision between a stock F-250 and a Ford Escape is a bumper-to-bumper collision, not an override.[19]

Second, Mr. Buchner confirmed his conclusion from the calculation using a separate methodology: a computer simulation of a collision between an unlifted 2016 Ford F-250 and a 2008 Ford Escape.

Despite RC's claim, Mr. Buchner is far from "self-taught" in HVE and other computer simulation modeling software—he is trained in HVE and has over 20 years of experience applying it in the field of accident reconstruction.[20]

Mr. Buchner used the HVE/SIMON/DYMESH computer model according to its intended purpose—simulating damage from vehicle-to-vehicle collisions.[21] HVE uses vehicle data, including stiffness coefficients, from real-world crash tests, allowing users to simulate crashes.[22] The company that created HVE endorses its use for "simulat[ing] vehicle-to-vehicle crash tests."[23] It also provides that "safety

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[19] Exponent's crash test between a stock F-250 and a Ford Escape showed it was not an override collision. *See* Ex. 9, Buchner Rebuttal Report, at 2, Par. 7; Ex. 10, Buchner Rebuttal Dep., at 95:4-23 (crash test damage analysis shows no override); Ex. 11, Roche Rebuttal Report, at 9382, Par. 12; 9392, Par. 4, 7 (crash test deformation pattern showed underbody structural engagement); Ex. 12, Roche Rebuttal Dep., at 84:2-87:3 (explaining the stock F-250 crash test did not result in an override).

[20] *See* Ex. 1, Buchner CV; Doc. 102-1, 1/23/24 Buchner Dep., at 13:21-14:4.

[21] *See* Ex. 13, Buchner Amended Report, at 2; Doc. 102-1, 1/23/24 Buchner Dep., at 42:14-17. HVE is a platform for simulation, which uses SIMON/DYMESH to model collisions.

[22] *See* Ex. 14, Engineering Dynamics Company, "HVE."

[23] *Id.*

researchers can use HVE's sophisticated modeling capability to simulate almost any crash sequence[,]" including to "evaluate crashworthiness."[24] HVE's User Manual states the program has sufficient data to "execute any HVE-compatible reconstruction or simulation model."[25]

The company that created SIMON/DYMESH states the program is specifically intended to simulate vehicle-to-vehicle collisions, including the resulting damage profiles to the vehicles:[26]

> SIMON may be used for numerous types of simulation studies. Applications for SIMON include: […]
> **Collision Simulation** – SIMON incorporates DYMESH, a general-purpose 3-D non-linear collision model for simulating vehicle-to-vehicle and vehicle-to-barrier collisions. **DYMESH calculates 3-D forces and moments between interacting meshes of each vehicle model.** SIMON includes these collision forces and moments with suspension forces, aerodynamic forces, and inter-vehicle connection forces **to produce the total vehicle-fixed forces** and moments acting on the vehicle at each timestep. **The resulting body damage is visualized as the 3-D mesh geometry changes during the event.**

The DYMESH program description also contemplates using the program to model crush depth in vehicle-to-vehicle collisions[27]—it provides that "vehicle deformation

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[24] *Id.*
[25] *See* Ex. 15, HVE User Manual excerpt.
[26] *See* Ex. 16, Engineering Dynamics Company, SIMON Description.
[27] RC cites a portion of this description where it states that researchers "can" compare simulated damage against real-world damage. Nothing in that description *requires* researchers to do so to produce valid results.

is visualized as it is calculated" in crash simulations and "[r]esults from DYMESH agree favorably with theory, test, and finite element results."[28]

Peer reviewed scientific literature also supports Mr. Buchner's use of HVE, SIMON, and DYMESH for his stock F-250 crash simulation. Accident reconstruction literature permits using simulation data to model vehicle damage profiles.[29] Additionally, peer reviewed studies have validated the SIMON model against real-world crash test data: "the SIMON simulation model has been validated against experimental data for handling *and collision tests*."[30] Multiple white papers have confirmed the effectiveness of SIMON/DYMESH at modeling vehicle deformation in collisions.[31] A paper evaluating the DYMESH model found its results "agree favorably" with theory, test, and finite element analysis

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[28] *See* Ex. 17, Engineering Dynamics Company, DYMESH description.
[29] *See* Ex. 18, Traffic Crash Reconstruction 2d ed, Lynne B. Fricke, at 692 (simulation modeling programs can "predict the damage and resulting vehicle travel paths"); Ex. 19, Vehicle Accident Analysis and Reconstruction Methods 2d ed., Raymond M. Brach, at 322 (noting a predecessor simulation model to SIMON "not only simulate[s] vehicle motion but model[s] collision deformation as well").
[30] *See* Ex. 20, SAE 2004-01-1207, Validation of the SIMON Model for Vehicle Handling and Collision Simulation—Comparison of Results with Experiments and Other Models, Terry D. Day.
[31] *See* Ex. 21, Lourniet, Simulation of a Four-Car Collision Using SIMON/DYMESH; Ex. 22, Sax et al., Analysis of SIMON/DYMESH Simulations for Underride Collisions.

results, and that "examples have shown the DyMesh method to be robust and effective" in computing vehicle deformation.[32]

Mr. Buchner's simulation confirmed the results of his calculation.[33] Mr. Buchner used the HVE program's stiffness coefficients and vehicle data for the 2016 Ford F-250 and 2008 Ford Escape. He matched the subject crash's speeds, offset, weights, vehicle structures, and angles. When information was unavailable (such as not knowing whether Mr. Elliott applied the brakes), Mr. Buchner applied the most *conservative* assumption for his analysis.[34] The simulation showed that the stock F-250 would have intruded 2.1 feet into the Bryson family's Ford Escape.[35] Given the results from the crush calculation and computer simulation, Mr. Buchner concluded that a stock F-250 would have intruded over two fewer feet into the Ford Escape than the lifted F-250 did.[36]

III. LEGAL STANDARD

Federal Rule of Evidence 702 governs the admissibility of expert testimony. It provides:

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[32] *See* Ex. 23, SAE Paper 1999-01-0104, The DyMesh Method for Three-Dimensional Multi-Vehicle Collision Simulation, York et al, at 1, 17.
[33] As RC notes, Mr. Buchner's initial simulation was inadvertently lost due to file corruption. Mr. Buchner re-ran his simulation and produced the results to RC.
[34] *See* Ex. 10, Buchner Rebuttal Dep., at 102:16-103:10; 163:7-165:2.
[35] *See* Ex. 13, Buchner Amended Report, at 3-4.
[36] *See* Ex. 2, Buchner Report, at 11.

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
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> > (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
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> > (b) the testimony is based on sufficient facts or data;
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> > (c) the testimony is the product of reliable principles and methods; and
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> > (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702(b). The party proffering expert testimony must prove that the Rule 702 requirements have been satisfied. *United States v. Frazier,* 387 F.3d 1244, 1260 (11th Cir. 2004) (en banc).

Daubert's admissibility standards do not substitute the adversarial process. Instead, cross-examination and presentation of contrary evidence at trial remain the "traditional and appropriate means" of attacking an expert witness's conclusions. *Daubert*, 509 U.S. at 596.

IV. ARGUMENT

Because Mr. Buchner supported his opinions with reliable principles and methods, the Court should permit him to offer them at trial. RC's disagreements with his opinions are subjects for cross-examination.

A. Mr. Buchner's mathematical crush calculation is reliable.

Mr. Buchner's crush calculation is an application of the validated, industry-standard crush analysis formula.[37] The Court needs to look no farther than the expert testimony in this case—***both*** expert accident reconstructionists agree the crush analysis formula can reliably solve for crush depth.[38] Mr. Grimes even testified to peer-reviewed literature supporting the use of crush analysis in *more* complex collisions than what Mr. Buchner did.[39]

RC's argument that the crush analysis formula can only calculate *from* vehicle deformation *to* delta-V contradicts its own expert's testimony—Mr. Grimes agrees the crush analysis formula can solve for vehicle deformation when the other variables are known.[40] RC's argument also contradicts basic math. Equations work works in both directions, as we all learned in basic math.[41]

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[37] *See* Ex. 3, SAE 2000-01-1318, Derivation of Closing Speed as a Function of Dissipated Energy, Traffic Crash Reconstruction, Northwestern University Center for Public Safety.

[38] *See* Doc. 102-3, Grimes Dep., at 155:23-18. Mr. Grimes' disclaimer that proper stiffness coefficients must be used does not change his agreement with Mr. Buchner's use of the formula to solve for crush depth. Mr. Buchner did use proper stiffness coefficients. *See* Ex. 6, Buchner Crush Calculation, at 3997-3998 (identifying Mr. Buchner's sources for stiffness coefficients).

[39] *Id.* at 154:10-155-18. Mr. Grimes testified that one paper supports using crush analysis to solve for vehicle deformation in *more complex* override collisions when adjusting for stiffness coefficients.

[40] *Id.*

[41] *See, e.g.*, "Symmetric Property: Definition, Importance, and Examples Video," www.study.com (available at https://shorturl.at/uUInj) (last visited 3/17/25).

Because Mr. Buchner had enough information (delta-Vs, vehicle geometry, and vehicle stiffness coefficients) to input every piece of information except the vehicle crush depth, he could reliably use the validated, peer-reviewed equation to solve for that remaining variable.[42]

RC's case citations prove the *validity* of Mr. Buchner's crush calculation—each case confirms the crush analysis formula shows a reliable mathematical relationship between the variables it studies. *See, e.g., Silvestri v. Gen. Motors Corp.*, 271 F.3d 583, 588 (4th Cir. 2001); *Dragos v. Cornea*, No. C19-1338 JCC-TLF, 2021 WL 3540601, at *4; *Lanzetta v. Hyundai Motor Am., Inc.*, No. 16CV03390, 2020 WL 13660569, at *1 (D.S.C. June 29, 2020). Like accident reconstruction literature, the caselaw confirms a valid mathematical relationship between delta-V and vehicle deformation; that calculation permits Mr. Buchner to solve for vehicle deformation since all other variables are known.

RC seeks to create a limitation for the crush analysis formula where there is none. The generally accepted, widely used, validated crush calculation is subject to the symmetrical property like all other calculations. The Court should permit Mr. Buchner to testify to the crush calculation he performed.

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[42] *See* Ex. 2, Buchner Report, at 10; *see also* Ex. 6, Buchner Crush Calculation.

B. Mr. Buchner's computer simulation is reliable.

Rough Country tries very hard to make the reliability of the computer simulation confusing, even though it is simply a more sophisticated mathematical calculation of crush. Mr. Buchner's crush simulation is the product of a valid computer simulation model that has been extensively studied and validated in the field of accident reconstruction. The Court should allow Mr. Buchner to testify about his simulation results at trial.

1. Mr. Buchner's use of the HVE/SIMON/DYMESH computer simulation model to simulate deformation is a reliable methodology.

The HVE/SIMON/DYMESH user manual authorizes researchers to use the program exactly as Mr. Buchner did—to simulate a collision and analyze the resulting vehicle damage.[43] Nothing in the programs restricts users to only simulating collisions that have already occurred. If, as RC claims, computer models could only simulate collisions *with* an accompanying full-scale crash test, computer simulations would be useless.

Despite RC's claim to the contrary, the HVE/SIMON/DYMESH models have been *extensively* studied, tested, and validated through peer-reviewed literature. That literature supports the validity of Mr. Buchner's computer

[43] *See* Ex. 14, Engineering Dynamics Company, "HVE"; Ex. 15, HVE User Manual excerpt; Ex. 16 Engineering Dynamics Company, SIMON description; Ex. 17, Engineering Dynamics Company, DYMESH description.

simulations in predicting crash deformation.[44] Those studies confirm the validity of Mr. Buchner's methodology—computer simulations performed in HVE/SIMON/DYMESH models are "robust and effective" in predicting vehicle deformation.[45]

Even RC's expert accident reconstructionist agrees—the field of accident reconstruction permits using SIMON to simulate and predict vehicle crush in non-override collisions.[46] His *sole concern* about using SIMON to model vehicle crush is that the program would require adjustment if the collision were an override.[47] Mr. Buchner's computer simulation of a bumper-to-bumper collision between a *stock* F-250 and a Ford Escape did not involve an override condition—RC's own crash test proves that.[48] In addition, Plaintiffs' experts have studied exemplar vehicles and observed that the bumpers align for proper engagement if the F250 is unlifted.[49] **Both sides' experts in this case agree**—using the SIMON model to

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[44] *See* Ex. 20, SAE 2004-01-1207, Validation of the SIMON Model for Vehicle Handling and Collision Simulation—Comparison of Results with Experiments and Other Models, Terry D. Day; Ex. 23, SAE Paper 1999-01-0104, The DyMesh Method for Three-Dimensional Multi-Vehicle Collision Simulation, York et al, at 1, 17.
[45] *Id.*
[46] *See* Doc. 102-3, Grimes Dep., at 163:25-164:19.
[47] *Id.*
[48] *See* Ex. 9, Buchner Rebuttal Report, at 2, Par. 7; Ex. 11, Roche Rebuttal Report, at 9382, Par. 12; 9392, Par. 4, 7 (crash test deformation pattern showed Escape frame-level structural engagement).
[49] Doc. 138-1, Roche Report, at 25-26 (finding bumper-level alignment in 3-D scan data of stock 2016 Ford F-250 and 2008 Ford Escape).

predict crush depth in non-override crashes is "generally accepted" in the accident reconstruction community. *See Frazier*, 387 F.3d at 1262 (evaluation of expert testimony includes "whether the technique is generally accepted in the scientific community").

RC's repeated citation of Mr. Grimes' *ipse dixit* assertion that Mr. Buchner also needed to perform a full-scale crash test does not move the needle. Mr. Grimes could not point to any industry standard, literature, or other document supporting his view that every computer simulation *also* requires a full-scale crash test—he merely states it.[50] Mr. Grimes' claim contradicts industry research and program literature. *See Cook ex rel. Est. of Tessier v. Sheriff of Monroe Cnty.*, 402 F.3d 1092, 1112 (11th Cir. 2005) (court not required to admit opinion evidence "connected to existing data only by the ipse dixit of the expert").

RC's citation to *Dragos v. Cornea* is readily distinguishable. No. C19-1338 JCC-TLF, 2021 WL 3540601, at *6 (W.D. Wash. July 14, 2021). In *Dragos*, the court evaluated an expert's use of EDCRASH, an entirely different computer simulation program, to calculate crush. *Id.* The Court excluded the expert's use of EDCRASH because the EDCRASH User Manual only permits users to provide vehicle damage as an *input*, not calculate it as an *output*. *Id.* ("However, the EDCRASH user manual lists damage profiles as a program input and Delta-V as a

[50] *See* Doc. 102-3, Grimes Dep., at 163:3-10.

program output."). Unlike in the EDCRASH User Manual, the SIMON User Manual authorizes users to simulate crush depth as an *output*.[51] Unlike the expert in *Dragos*, Mr. Buchner used his computer simulation model in a manner (1) authorized by the program's user manual, and (2) validated by scientific literature.

RC's reliance *Bacho v. Rough Country* actually *supports* Mr. Buchner's vehicle-specific analysis. No. 3:14-CV-40-TCB, 2016 WL 4607880 (N.D. Ga. March 17, 2016). In *Bacho*, the accident reconstruction expert relied on studies and tests of vehicles that were different than those in the subject collision to opine that vehicle intrusion is generally less extensive at the wheel or pillar level. *Id.*[52] Because the expert did not have any data "on the particular make and model of vehicles involved in the crash," the Court excluded his opinion quantifying the precise *amount* of crush that would have been avoided without RC's lift kit but still permitted him to offer opinion evidence that the crush level would have been reduced. *Id.* Unlike in *Bacho*, Mr. Buchner used specific vehicle data from the

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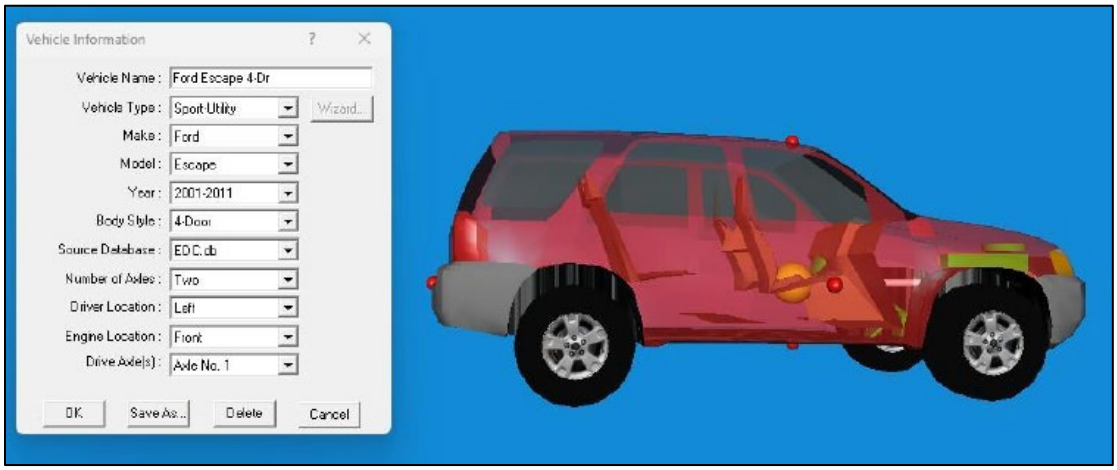
[51] *Compare* Ex. 24, EDCRASH User Manual (listing damage profile solely as an input); *with* Ex. 25, SIMON User Manual (listing "damage data" and "damage profiles" as model outputs).

[52] It used a different computer program called "PC Crash" to model the subject crash, but did not use it to model the hypothetical crash with an unlifted truck. *Bacho v. Rough Country*, LLC, No. 3:14-CV-40-TCB, 2016 WL 4607880, at *3 (N.D. Ga. Mar. 17, 2016). The parties therefore did not brief, and the court did not rule, on the validity of that software.

2016 Ford F-250 and chose the Ford Escape data provided by the SIMON software:[53]



Mr. Buchner used the HVE/SIMON/DYMESH program according to its intended purpose. RC's criticisms and Mr. Grimes' argument about the program's inapplicable limitations in override collisions (which the hypothetical unlifted crash would not have been) do not warrant exclusion—they are points for cross-examination that go to the *weight* of the simulation, not its admissibility. *Quiet Tech. DC–8, Inc. v. Hurel–Dubois UK Ltd.,* 326 F.3d 1333, 1341 (11th Cir.2003) "it is not the role of the district court to make ultimate conclusions as to the persuasiveness of the proffered evidence"; *Hemmings v. Tidyman's Inc.,* 285 F.3d 1174, 1188 (9th Cir. 2002) ("in most cases, objections to the inadequacies of a study are more appropriately considered an objection going to the weight of the evidence rather than its admissibility").

[53] *See* Ex. 26, HVE Screenshots (showing vehicle data selection).

2. Mr. Grimes' attempt to perform an HVE simulation of the subject crash does not invalidate Mr. Buchner's simulation of a non-override condition.

RC's claim that Mr. Buchner should have also simulated the subject collision to "validate" his simulation are disingenuous at best—both Mr. Buchner and Mr. Grimes agree the subject collision was an override and they both agree *the program cannot simulate override collisions* using default bumper-level stiffness coefficients.[54] Mr. Grimes' sur-rebuttal simulation of the subject collision between a *lifted* F-250 and Ford Escape merely proved what both experts already knew—the program does not work on override collisions. Because Mr. Buchner used the program to simulate a *non-override* collision, the difference between Mr. Grimes' *invalid* override simulation and the subject crash does nothing to disprove the results of Mr. Buchner's *valid* bumper-to-bumper simulation.

Mr. Grimes' other sur-rebuttal simulations equally fail to show any "error" in Mr. Buchner's simulation. RC's biased, paid expert is responsible for RC's invalid crash testing. RC's submission of more of his biased work cannot invalidate the well-accepted, validated methodology that Mr. Buchner used. *Daubert* is not the way to attack an expert who uses reliable methodology and

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[54] *See* Doc. 115-3, Grimes Report, at 23 ("Additionally, since the program uses a shell around the vehicle there is no means for the program to account for where the structural members are located on the vehicle and simulate the override in this case."); Doc. 102-1, 1/23/24 Buchner Dep., at 160:5-162:3.

obtains a result the opposing party does not like. *See Quiet Tech.*, 326 F.3d at 1341 (favoring "vigorous cross-examination [and] presentation of contrary evidence" to exclusion).

Additionally, because Mr. Grimes' sur-rebuttal report was disclosed six months after the Court's deadline, Plaintiffs (and the Court) have not had the opportunity to inquire into Mr. Grimes' methodology behind his sur-rebuttal simulations.[55] Due to the prejudice RC's belated disclosure caused, Mr. Grimes' sur-rebuttal opinions are currently subject to a motion to strike.[56] RC's continued use of improperly disclosed materials further underscores why that motion should be granted.

RC's claim that every simulation requires an accompanying crash test amounts to an assertion that simulation software must be re-tested against real-world conditions every time it is used. There is nothing in the literature to support such a requirement. Mr. Buchner's simulation software has been peer-reviewed, validated, and agreed to by both accident reconstructionists in this case as a generally valid methodology; RC's objections to its case-specific validation are a topic for cross-examination. *See Vincent v. Am. Honda Motor Co., Inc.*, No. CV 108-067, 2010 WL 11537726, at *7 (S.D. Ga. July 1, 2010) ("Thus, the alleged

[55] *See* Doc. 116.
[56] *Id.*

flaws in [the expert's] purported validation are of a character that impugn the accuracy of his results, rather than the general scientific validity of his results.").

3. RC's attempt to equate the errors in its own methodology with its criticisms of Mr. Buchner's HVE simulation ignores Eleventh Circuit caselaw.

Decades later, people still remember OJ Simpson struggling to put on the glove from the scene of the crime. Demonstrations are very powerful, and the caselaw acknowledges that. *See United States v. Gaskell*, 985 F.2d 1056 (1993). They are even more powerful when it comes to videos of cars or crashes purporting to re-create a crash. *See Gladhill v. Gen. Motors Corp.*, 743 F.2d 1049, 1051 (4th Cir. 1984) (test made it "easy to understand why the jury might be unable to visualize plaintiffs' version of the events after this film"). That is the purpose of the "substantial similarity" test—when crash tests create a visual similarity to the underlying collision, they must satisfy the test. *See Burchfield*, 636 F.3d at 1336 (explaining that "resemblance to the disputed accident gives rise to the requirement of substantial similarity") (quoting *Muth v. Ford Motor Co.*, 461 F.3d 557, 566 (5th Cir. 2006)).

Mr. Buchner's HVE analysis is not a demonstration that could leave the jury "unable to visualize [defendants'] version of the events" after seeing it. Mr. Buchner's visual depictions of his simulations are drawings.[57] Primarily, he will

[57] *See* Ex. 13, Buchner Amended Report, at 3-4.

use line drawings. If the Court permits it, he will also use a 3D picture showing the depth an unlifted F-250 would have reached based on his calculations. He used a modeling software that is widely used in his industry. He studiously adapted all the variables he could to align with our crash. Any error in the model or his assumptions operates *against* him. It is "fairly and honestly made," as the caselaw requires. *See Burchfield*, 636 F.3d at 1336.

RC's crash test is a wholly different beast. It falls into the category of powerful, visual recreation of how two vehicles respond to conditions. *See Gladhill*, 743 F.2d at 1049. The jury will have a difficult time imagining Plaintiffs' version of events after seeing it. *Id.* It must therefore meet the heightened "substantial similarity" requirement. In contrast to Mr. Buchner's work, every variable that was "off" was intentionally skewed *in RC's favor*. Its crash test does not meet the requirement that it be "fairly and honestly made." *See Burchfield*, 636 F.3d at 1336.

Because Mr. Buchner's HVE analysis does not bear the kind of "resemblance to the disputed accident" which "gives rise to the requirement of substantial similarity" that a crash test would, it is not subject to the substantial similarity requirement. *See Burchfield*, 636 F.3d at 1336. But *even if* Mr. Buchner's simulation required a "substantial similarity" to the subject collision, it would comfortably meet that test. Under the test, "it is not required that all

conditions shall be precisely reproduced," only that it is similar enough to afford a "fair comparison in respect to the particular issue to which the test is directed." *Id*. Mr. Buchner's core conclusion from his computer simulation was that an unlifted F-250 would have intruded *at least* two fewer feet into the subject Escape.[58] He could reliably reach that conclusion through a "fair comparison" with the subject collision by filling in all gaps with the most conservative inputs in RC's favor. Each of RC's claimed dissimilarities (the absence of a sunroof, speed, and cargo) tends to *increase* the intrusion his simulation would show, which only *hurts* Mr. Buchner's results.[59] His use of the simulation to conclude that the lifted F-250 intruded "at least" two additional feet is exactly the "fair comparison" permitted by the test—changing any of the variables RC now complains about would only make his simulation results more potent. *See Burchfield*, 636 F.3d at 1336-37.

C. Mr. Buchner's analysis of Exponent's crash test is reliable.

Mr. Buchner used three independent methods to determine that the Exponent crash test introduced 5 inches ± 1 inch of *additional* offset from the subject crash.[60] RC does not substantively challenge Mr. Buchner's methodology—it seeks his

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[58] *See* Ex. 2, Buchner Initial Report, at 11.
[59] *See* Ex. 10, Buchner Rebuttal Dep., at 102:16-103:10; 163:7-165:2; Doc. 138-1, Roche Report, at 10; *see also* Ex. 12, Roche Rebuttal Dep., at 64:11-19 (sunroof variable would tend to increase intrusion).
[60] *See* Ex. 9, Buchner Rebuttal Report, at 5-7; *see also* Doc. 115-10, Buchner Offset PowerPoint.

exclusion because he did not quantify exactly *how inaccurate* it made RC's crash test results. Nothing about RC's argument undermines the "reliable principles and methods" Mr. Buchner used to form his opinion. *See* Fed. R. Evid. 702(c). RC's argument about the limitations of Mr. Buchner's conclusions is a subject for cross-examination. *See Daubert*, 509 U.S. at 596 (cross-examination remains the "traditional and appropriate" means for attacking expert testimony).

D. The Court should not exclude Mr. Buchner's testimony under Rule 403.

Rule 403 only permits exclusion of testimony where that testimony's "probative value is *substantially* outweighed by the danger of […] unfair prejudice." Fed. R. Evid. 403. RC fails to articulate *any* unfair prejudice associated with Mr. Buchner's testimony; let alone enough to outweigh the significant probative value his expert analysis offers. RC's challenges to Mr. Buchner's testimony are a subject for cross-examination, and do not warrant the extreme remedy of Rule 403 exclusion. *See United States v. King*, 713 F.2d 627, 631 (11th Cir. 1983) (exclusion under Rule 403 "is an extraordinary remedy which should be used sparingly").

E. The Court should individually evaluate each expert's methodology.

The Court should reject RC's plea to exclude all opinions of Plaintiffs' other experts "to the extent" they rely on Mr. Buchner's opinions. Experts can have

more than one basis for an opinion—excluding one basis for an expert's opinion does not automatically render it invalid. The Court should reject RC's blanket attempt to exclude expert testimony that references Mr. Buchner's opinions and instead address the merits of each expert's opinions individually.

V. CONCLUSION

Mr. Buchner's opinions are the product of reliable principles and methodologies validated by peer-reviewed literature. Even RC's expert accident reconstructionist disagrees with its criticisms of Mr. Buchner's methodologies. RC's objections to Mr. Buchner's conclusions are subjects for cross-examination, not exclusion.

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CERTIFICATE OF COMPLIANCE

Pursuant to Local Rules 5.1(B) and 7.1(D), I hereby certify that the foregoing filing complies with the applicable font and size requirements and is formatted in 14-point Times New Roman font.

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I hereby certify that the foregoing was electronically filed with the Clerk of Court via CM/ECF, which will automatically serve the following attorneys of record:

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